

Vermont Forest Health

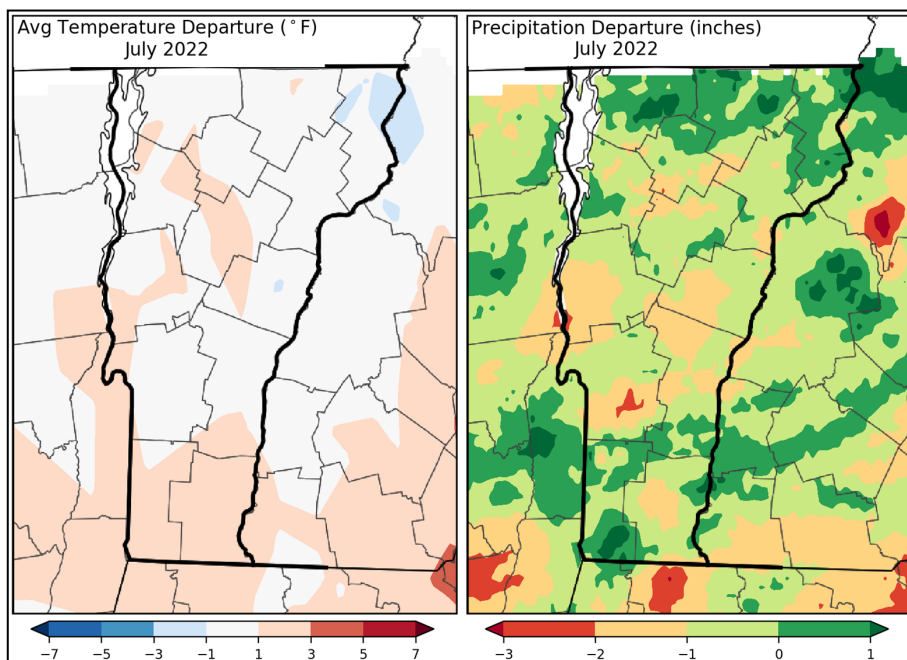
Insect and Disease Observations – July 2022

Department of Forests, Parks & Recreation
July 2022
vtforest.com

Weather

The month of July is historically the warmest month in Vermont on average. State-wide temperatures averaged 67.5 °F, which was 2.7 degrees warmer than July of last year. Statewide precipitation averaged 3.71 inches, which was 3.94 inches less than July of last year.

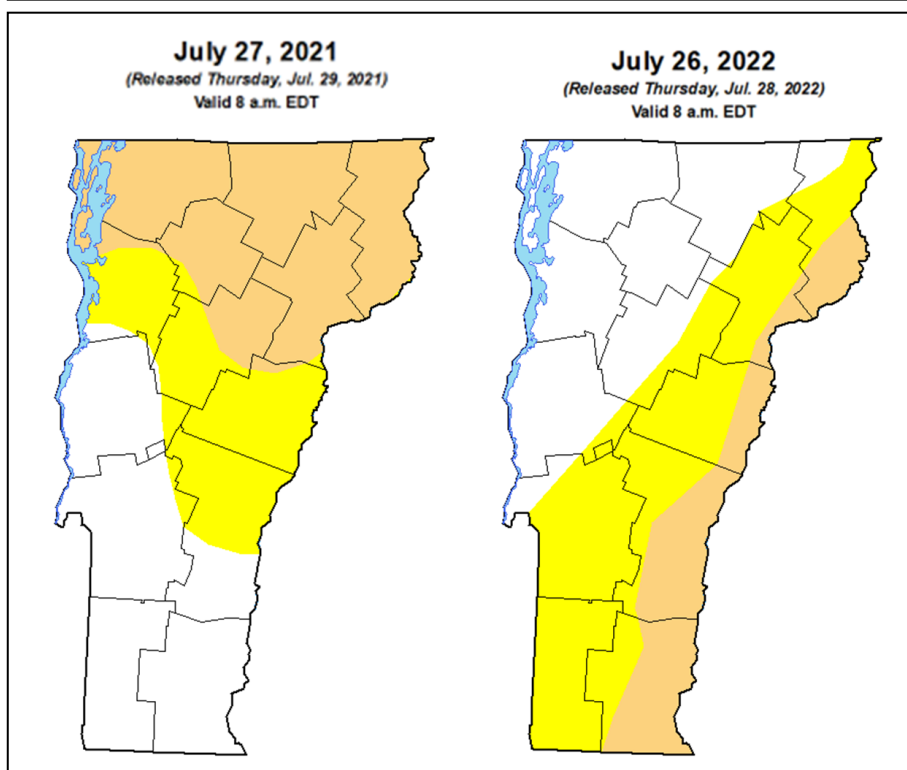
Average temperature and precipitation departure from normal. Maps and data: [Northeast Regional Climate Center](http://NortheastRegionalClimateCenter.com).



Drought Update

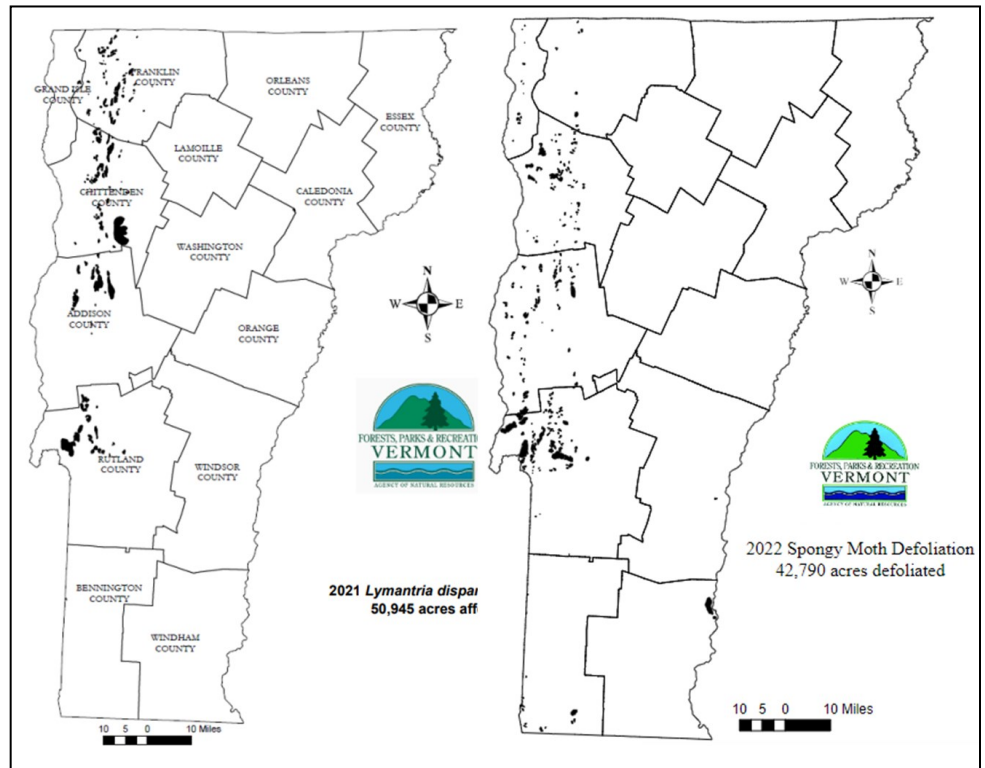
Scattered rainfall decreased drought severity in some parts of the state. By the end of the month, the U.S. Drought Monitor listed 17.45% of the state in moderate drought, 40.01% as abnormally dry, and 42.54% as no drought. Compared to this time last year on July 27, 2021, 39.24% of the state was listed in moderate drought, 23.61% as abnormally dry and 37.15% as no drought.

Drought Comparison between July 2021 and 2022. Map and data: [U.S. Drought Monitor](http://U.S.DroughtMonitor.com).



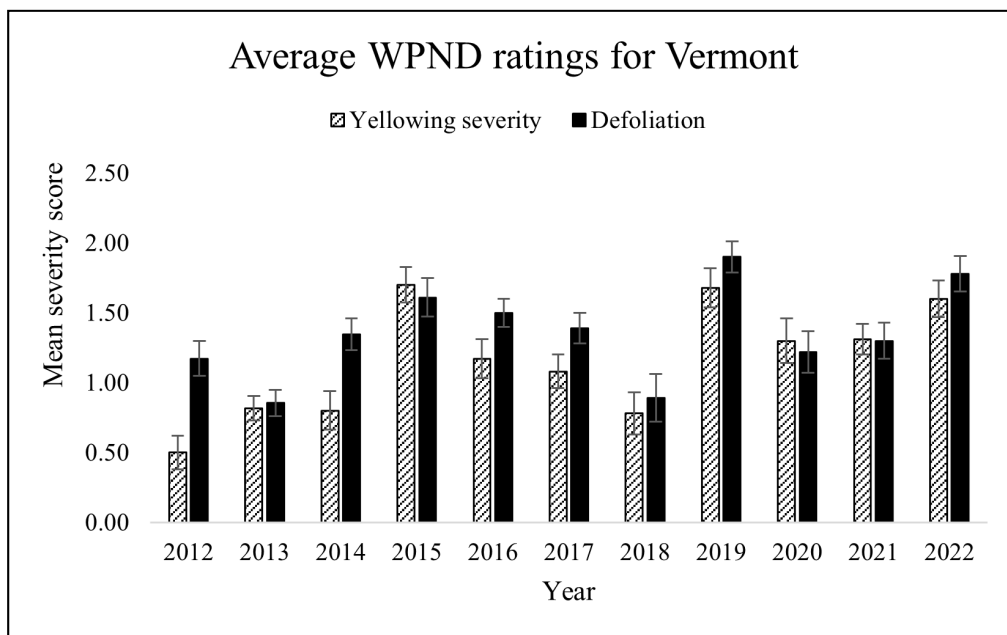
Spongy Moth Update

Spongy moth (*Lymantria dispar dispar*) defoliation was mapped through aerial detection surveys from the end of June through July. Defoliation was significant in the Champlain River Valley of western Vermont, with mapped areas extending to the foothills of the Green Mountains. In 2022, 42,790 acres of defoliation was mapped as moderately or severely defoliated, a decrease from the 50,945 acres mapped in 2021. For updated spongy moth information, visit FPR's [Spongy Moth Information Page](#).



Spongy moth defoliation comparison between 2021 and 2022. Map and data: FPR Staff.

WPND Update



Average WPND yellowing severity and defoliation for Vermont based off our long-term monitoring plots. Graph and data: FPR Staff.

White pine needle damage (WPND) has affected pine foliage in Vermont for the last decade, and this year was no different. Damage was higher than in 2021, with significant yellowing and early needle drop across the state. The expression of WPND is worse in years following wet springs (e.g., 2022 damage is influenced by 2021 weather). Due to the wet spring of 2022, we expect to see an increase in severity in 2023. For more information on WPND, please see our annual [Forest Insect and Disease Conditions report](#).

Supplemental Sightings

Beech anthracnose (causal agent: *Discula umbrinella*) has been observed across the state following periods of persistent heavy rainfall. This pathogen causes irregular brown spots (necrosis) on leaves and between the veins of American beech (*Fagus grandifolia*). Necrotic spots will expand outward on the leaf. Although not commonly associated with large-scale die-back or mortality, heavily infected trees may have light die-back and premature leaf drop.

Beech anthracnose. Photo credit: Dr. Sharon Douglas, CT Agricultural Experiment Station.



Leopard slugs (*Limax maximus*) were reported in a residential garden in Orange county this month. This invasive slug is native to Europe, Africa and Asia, and has been reported in 38 U.S. states including Vermont. Leopard slugs primarily consume fungi, although as an omnivore they can also eat plants, roots, lichen, human food, and animal waste. This slug can be an intermediate host for the rat lungworm nematode *Angiostrongylus cantonensis*, which has the potential to infect humans.

Leopard slug. Photo credit: Timothy Reichard.

Hickory leaf stem gall aphid (*Phylloxera caryaecaulis*) were observed causing galls on hickory (*Carya ovata*) leaf petioles in Chittenden County this month. This aphid's feeding induces abnormal growths (galls) on young twigs, petioles and main veins of infested hosts. Once mature, this aphid deposits eggs into the developed gall, which provides the developing larvae with protection and shelter from harsh environmental conditions and predators.

Hickory leaf stem gall. Photo credit: [Claude Pilon](#).



Harris's three-spot caterpillars (*Harrisimemna trisignata*) were observed in Pawlet, VT this month. From behind, this native caterpillar resembles an alert jumping spider, appearing to have fangs when it rears its legs. From the front, this caterpillar deters predators by retaining previously shed head capsules on its setae and thrashing them back in forth. [Check out this video to see these defense adaptations in action.](#)

Harris' three spot caterpillar. Photo credit: Jerry McCormick, [BugGuide](#).

Aspen petiole gall moths (*Ectoedemia populella*) were observed in Chittenden County this month. This native moth causes galls in the petioles of several aspen species (*Populus* spp.), which its larvae use for protection against predators and harsh environmental conditions. Although infected leaves may prematurely drop from the tree, this does not cause or contribute to large-scale dieback or decline.

Gall caused by the aspen petiole gall moth.
Photo credit: Tony DeSantis, [BugGuide](#).



Curled rose sawfly (*Allantus cinctus*) were observed feeding on ornamental roses (*Rosa* spp.) in central Vermont. This insect will start by chewing crescent-shaped holes in the rose leaves, and then eventually consume the entire foliage leaving only the mid-veins. This sawfly is originally from Europe but now has become naturalized (non-native but not invasive) in North America.

Curled rose sawfly larvae. Photo credit: Hg, [BugGuide](#).

Balsam woolly adelgid (*Adelges piceae*, BWA) was reported in the already infested county of Rutland. BWA is an invasive insect that feeds on true firs. This insect uses its piercing and sucking mouthparts to consume phloem tissue from branch twigs and nodes of infested hosts. During their feeding, the insects inject digestive enzymes into the host, which causes abnormal tree growth also known as “gouting”. This gouting stunts the growth of twigs and branches which can lead to dieback and decline. Although an invasive insect, BWA has a scattered and sporadic presence throughout the state due to their low mobility and reliance on wind dispersal.



BWA gouting. Photo credit: Ron Kelley.



Spongy moth caterpillars (*Lymantria dispar dispar*) have pupated in most parts of the state. Spongy moth caterpillars pupate in cocoons, which can be found in a variety of protected habitats including bark crevices, stone walls, as well as picnic tables and vehicle wheel wells. Its pupal stage lasts between 10-14 days, after which, caterpillars transform into adult moths. Newly emerged adult moths will mate and start laying eggs in late July.

Female spongy moths laying eggs July 11, 2022. Photo credit: FPR Staff.

Long-tailed giant ichneumon wasp (*Megarhyssa macrurus*) was reported on maple (*Acer sp.*) in Rutland County. This native wasp is an internal parasite of the wood boring pigeon tremex (*Tremex columba*). Female wasps have a 4-inch long ovipositor, which is used to drill through tree bark and decaying wood, to deposit eggs onto a pigeon tremex larvae. As the wasp eggs hatch, they consume and kill the infested larvae.

Female long-tailed giant ichneumon wasp.
Photo credit: Dave CB, [BugGuide](#).



Black trumpets (*Craterellus fallax*) were observed in late July in Addison County. This mushroom doesn't have a clearly defined cap and stem but is deeply vase-shaped and thin-fleshed. This mushroom is mycorrhizal and is often found growing individually or in loose clusters in beech and oak-dominated forest types. Due to its unique color and shape, this mushroom has no reasonable look-a-likes.

Loose cluster of black trumpets. Photo credit: Michael Kuo, [MushroomExpert](#).

Angulose prominent caterpillars (*Peridea angulosa*) were observed in Washington County this month. These native hardwood defoliators are specialist feeders, and only feed on oak (*Quercus spp.*) leaves. These insects have two generations per year in the northeast, with caterpillars feeding through summer and late into fall.

Angulose prominent caterpillars. Photo credit: Rachel Skinner, [BugGuide](#).



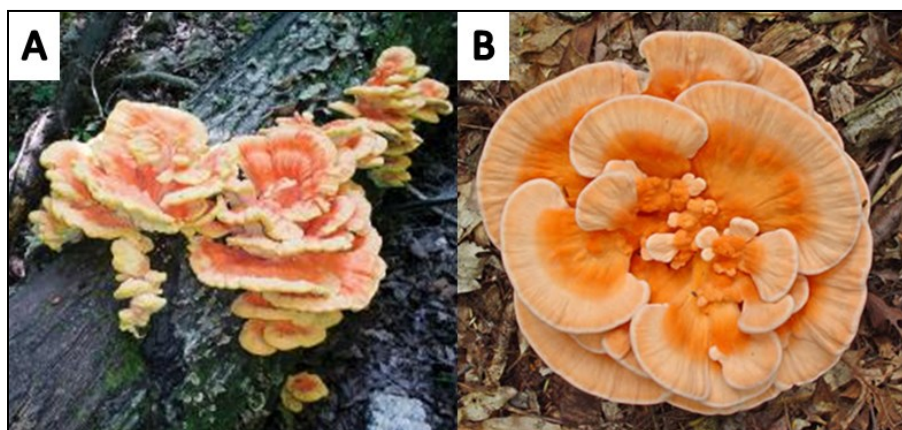
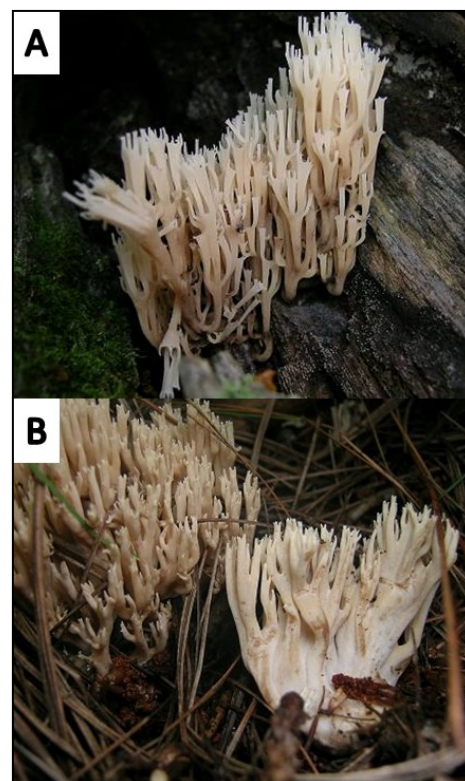
Twice-stabbed lady beetles (*Chilocorus stigma*) were observed on American beech (*Fagus grandifolia*) in Springfield, VT. This native lady beetle feeds on scale insects including beech bark disease scale (*Cryptococcus fagisuga*) as well as adelgids, aphids and other soft bodied insects. In its native range of North America, this lady beetle is listed as vulnerable in three [Canadian provinces](#).

Twice-stabbed lady beetle feeding on beech bark disease scale. Photo credit: FPR Staff.

Foraging For Fungi

Crown-tipped coral (*Artomyces pyxidatus*) is an edible mushroom that is saprotrophic and can be found growing alone or in groups on decaying hardwoods. The fruiting body is 1-13cm tall and 2-10cm wide and consists of repeatedly branched mycelium. Individual branches are 1-5mm thick and is whitish yellow, maturing to a pale tan with pink hues. The tips of branches are crowned with 3-6 points and are either the same color as the branch or slightly brown. It has a white spore print. The base of the fruiting body is 1-3cm long and up to 1cm thick and is whitish pink to brown in color. This mushroom can be mistaken for the non-edible strict-branch coral (*Ramaria stricta*). The fruiting body is 4-14cm tall and 4-10cm wide and consists of vertical repeating branches. Individual branches are yellow-orange in color with yellow tips and the branches turn purple when bruised. It has a rusty yellow spore print. The base of the fruiting body is either absent or up to 2cm wide and is white in color.

A: Crown-tipped coral. **B:** Strict-branch coral.
Photo credit: Michael Kuo, MushroomExpert.



A: *L. sulphureus*. Photo credit: Maxine Stone, Missouri Department of Conservation. **B:** *L. cincinnatus*. Photo credit: David Work, Messiah College.

Chicken of the woods (*Laetiporus* spp.), a genus that contains several species of fungi, including *L. sulphureus* and *L. cincinnatus*. Fungi in this genus are both parasitic and saprotrophic, consuming both living and dead tissue of host trees. *L. sulphureus* is a heartwood rotter, and can be found growing in overlapping shelf-like clusters out of hardwood boles. This fungus is bright orange and yellow and has wavy-edged brackets that are 5-25cm wide and up to 3cm thick. The underside of the cap has a pale yellow to white

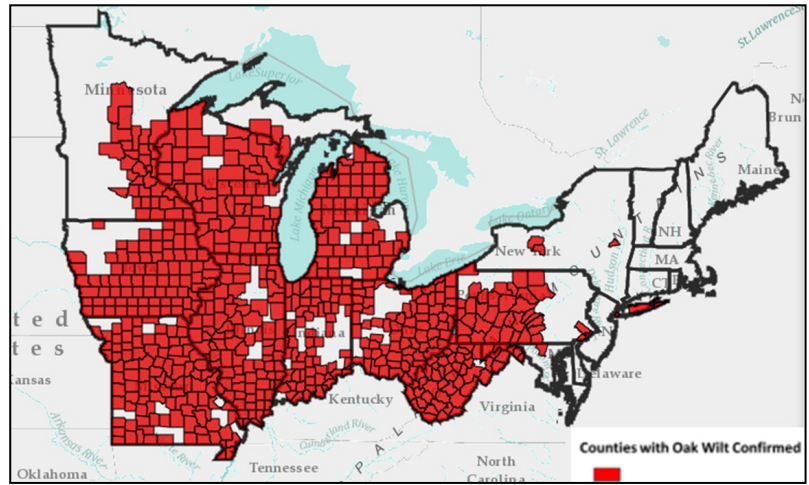
pore surface with circular to angular pores. It has a white spore print. *L. cincinnatus* is a root rotter, and can be found growing in a rosette at the base or roots of hardwood trees. Its cap is semicircular to kidney-shaped and is pale to bright pinkish orange in color. Individual fungi are 4-20cm wide and up to 2cm thick, although rosettes can be up to 45cm across. The underside of the cap has a whitish pore surface with circular to angular pores. It has a white spore print.

The State of Vermont accepts no liability or responsibility for the consumption and/or misidentification of any mushrooms mentioned in this publication.

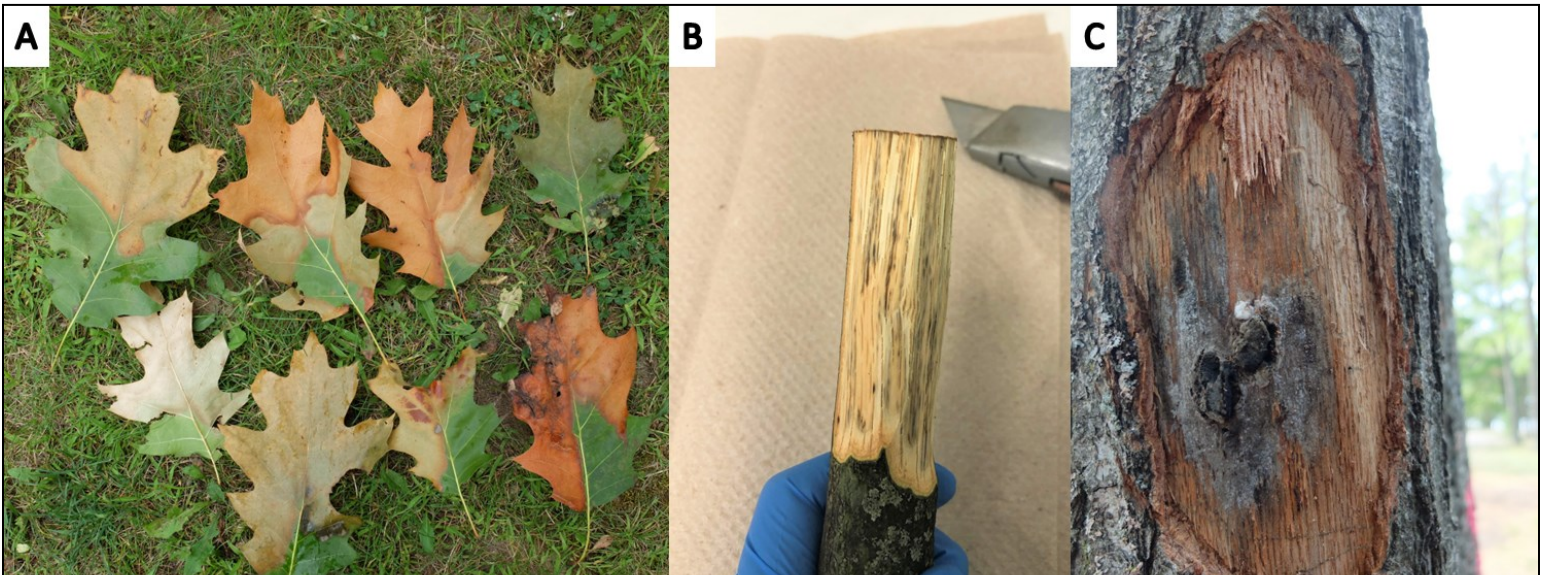
Pests in the Spotlight: Oak Wilt

Oak wilt (*Bretziella fagacearum*) is a vascular tree disease of oak trees, which causes rapid decline and mortality in infected hosts. Due to the fast progression of this disease, it is thought to be introduced to the United States, however, its exact origin is unknown. This pathogen was first documented in Wisconsin in 1944 and has not been observed in Vermont. This pathogen has currently been reported and lab confirmed in 12 states, with Glenville, NY being the closest infection center to Vermont.

Oak wilt can infect all species of true oaks (*Quercus* spp.), however, members of the red oak family are most susceptible to mortality after infection. This pathogen spreads large distances through a variety of bark and sap-feeding beetles as well as locally, through root grafts. Humans can expedite the spread by moving infected firewood, or transporting insect vectors. Early symptoms of this pathogen include wilted and discolored margins of leaves. This can lead to leaf drop during the growing season which gives infected trees a “fall-like” appearance. Cutting into the infected tree will show symptoms of xylem streaking, which is a symptom more commonly found with white oak family members. In red oak family members, sporulating mycelial mat with pressure pads will develop under the bark of infected trees, which can lead to bark splitting. (This is uncommon for most white oak family members.) Over time, dieback and mortality will progress, with red oak family members having rapid onset and mortality which can happen over a single growing season, and white oak family members having a slower decline. For more information on oak wilt, or to report a sighting, please visit [VTinvasives](https://www.vtinvasives.org/).



U.S. Counties with confirmed oak wilt infections. Map and data: [USDA Forest Service, Northern Research Station and Forest Health Protection](https://www.aphis.usda.gov/foresthealth/nrsc/).



A: Symptomatic leaves. Photo credit: Monique Sakalidis, Michigan State University. **B:** Xylem streaking. Photo credit: Laura Miles, Michigan State University. **C:** Mycelial mat and pressure pad. Photo credit: Monique Sakalidis, Michigan State University.

Early Detection Species: Butterbur

In New England, there are multiple sweet-coltsfoot species (Genus *Petasites*). *Petasites* have quite the global range: invasive Butterbur sweet-coltsfoot (*Petasites hybridus*) evolved in central Europe, Scandinavia, and northwestern parts of Asia; invasive Japanese sweet-coltsfoot (*Petasites japonicus*) evolved in China, Korea, and Japan; and Northern sweet-coltsfoot (*Petasites frigidus*) evolved in North America. A variety of Northern sweet-coltsfoot (*Petasites frigidus* var. *pal-matus*) is ranked as threatened in Vermont. The genus name comes from the Greek word, petasos, a wide brim farmers hat in ancient Greece, and it alludes to the giant-sized leaves these species produce each year. In Vermont, the invasive *Petasites*' large leaves shade out any other vegetation, and the plants can spread aggressively by rhizomes, which can recolonize from fragments. Note that the similar appearance and common names (coltsfoot) can cause *Petasites* to be confused for an introduced plant, coltsfoot (*Tussilago farfara*).

The invasive *Petasites* are large herbaceous perennials that are mostly planted in herbal gardens or as ornamentals. Most populations that are discovered in North America are suspected to be garden escapes. *P. hybridus* was first confirmed in Vermont in 2009, is thought to have been in New England for at least a century (if not longer). *P. japonicus* also has an unclear history in New England but was confirmed in Vermont in 2016. Once escaped from cultivation, these *Petasites* species invade wetlands, forests, forest edges, bogs, marshes, and other semi-shaded moist areas, though there are reports of *Petasites* in Vermont growing in full sun at elevations above 1400'. Flowering stalks appear first in the spring before "leaf out". Male and female flowers appear on separate plants (dioecious) and are shorter in height than the leaves. The most effective way to tell the invasive *Petasites* apart is by the flowers. *P. hybridus* has pinkish red flowers and purple bracts (modified leaf), while *P. japonicus* has white/light yellow flowers with green bracts. *Petasites* are also confused with common look-alikes, including the common burdock, wild ginger, and the aforementioned coltsfoot. You can distinguish these plants by comparing:



Japanese sweet-coltsfoot (*Petasites japonicus*) on Lincoln gap road in Warren, Photo A. Marcus, VT F&W and Green Mt & Finger Lakes National Forest.

Leaves

- Invasive *Petasites* leaves are large (can be several feet wide), heart-shaped, hollow stemmed, with toothed margins.
- Common burdock leaves are moderately sized (reaching lengths of over a foot), elongated, with a wavy toothed margin.
- Wild ginger leaves are small (several inches across), heart-shaped, with a smooth margin.
- Coltsfoot leaves are small (2-8" across), heart-shaped, with slightly toothed margins.

Size

- Invasive *Petasites* can reach heights of 6' or more.
- Common burdock can reach heights of 3'-6'.
- Wild ginger can reach less than 1' high.
- Coltsfoot can reach heights of 1-2'.

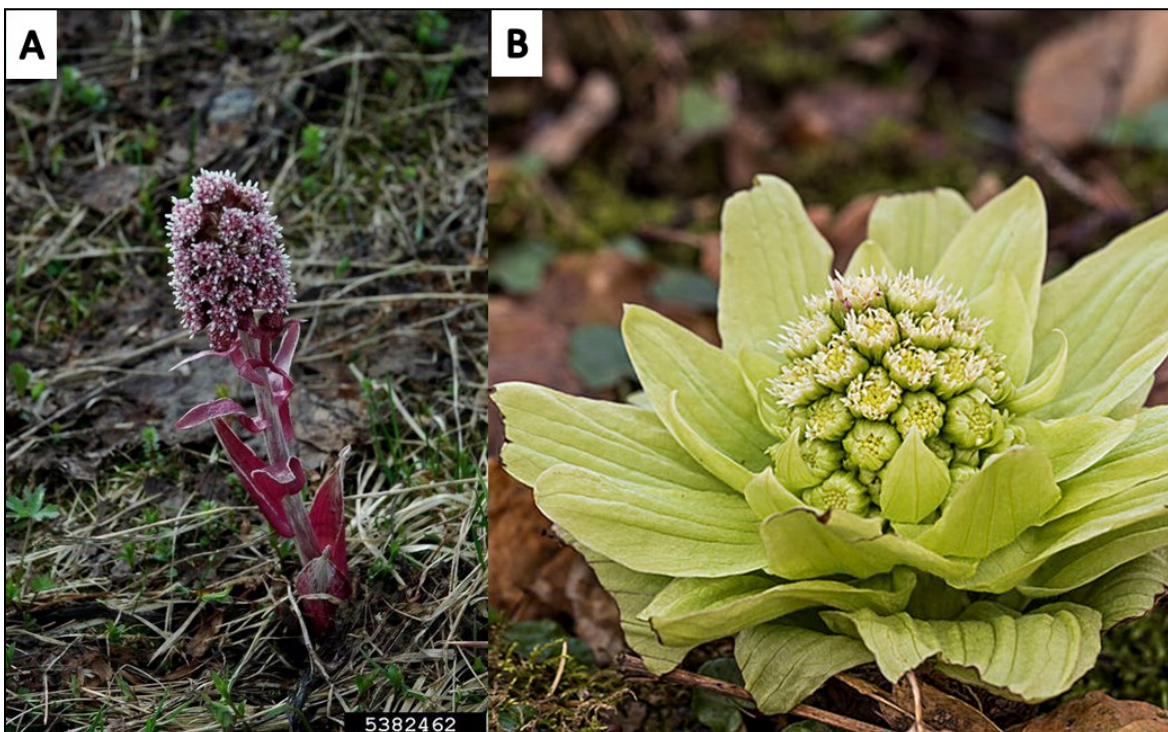
Flower

- Invasive *Petasites* flowers appear in the spring before the plants' leaves emerge. The flowers are large, and are either pinkish red or white-ish yellow.
- Common burdock flowers are thistle-like, purple, and cause the entire plant to grow taller when it bolts.
- Wild ginger flowers are small, red-brown, at ground level below the leaves.
- Coltsfoot flowers are small and yellow (look like dandelion flowers).

Petasites are listed as an early detection invasive plant on [Vermont's unofficial invasive plant "Watch List"](#), and has New York Invasiveness ranking of moderate to high. Though there may be some landscape or edible benefits to these plants, they are considered invasive because of the documented detrimental impacts combined with the species' ability to escape and spread throughout New England. There are currently limited populations of these two species in Vermont, so if found, please report them using the [Report It! Tool](#) on the [VTinvasives.org](#) website.

To learn more about *Petasites*, check out [VTinvasives](#) and these resources:

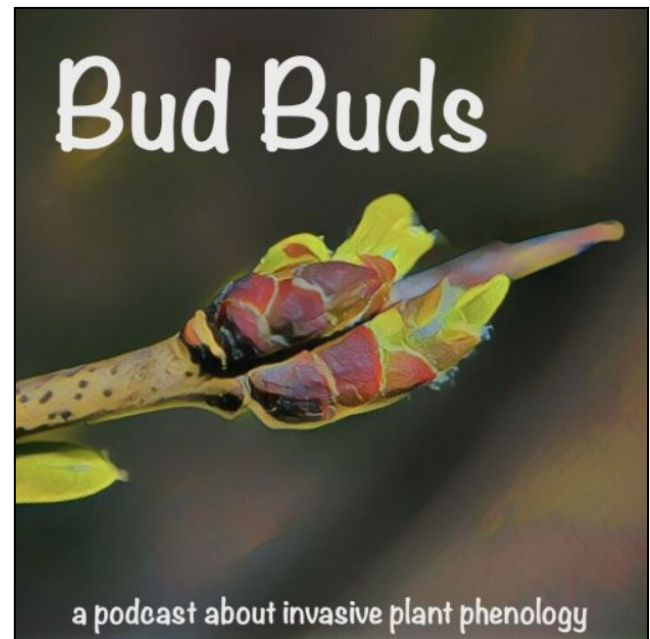
[Centre for Agriculture and Bioscience International](#)
[Midwest Invasive Species Information Network](#)
[Wisconsin Department of Natural Resources](#)
[Missouri Botanical Garden](#)
[State of Michigan, Michigan Invasive Species](#)



A: Bloom of butterbur sweet-coltsfoot (*Petasites hybridus*). Photo credit: William M. Ciesla, Forest Health Management International, [Bugwood](#). **B:** Bloom of Japanese sweet-coltsfoot (*Petasites japonicus*). Photo credit: Efemar, Wikimedia Commons, [CC ASA 3.0](#).

Invasive Plant Phenology

In the second full week of each month, volunteers report invasive plant phenology from around the state. Their observations are compiled here, creating both a timely resource for best management options and a historic record of plant behavior. If you would like to be involved in this effort, please contact pauline.swislocki@vermont.gov. This project aspires to include observations from every county, so observers are still needed in multiple places. For more information about the phenology of invasive plants in Vermont, check out [Bud Buds](#), a podcast from the Invasive Plant Program.



Chittenden —Leaves: Asiatic bittersweet, black swallowwort, common barberry, common buckthorn, dames rocket, glossy buckthorn, Japanese barberry, knotweed, multiflora rose, Norway maple, Phragmites, purple loosestrife, shrub honeysuckle, wild parsnip; Flowers/flower buds: dame's rocket, knotweed, multiflora rose, purple loosestrife, shrub honeysuckle, wild parsnip; Open flowers: dame's rocket, knotweed, multiflora rose, purple loosestrife, shrub honeysuckle, wild parsnip; Fruits: Asiatic bittersweet, black swallowwort, common barberry, common buckthorn, glossy buckthorn, Japanese barberry, Norway maple, shrub honeysuckle, wild parsnip; Ripe fruits: shrub honeysuckle, wild parsnip.

Orange —Leaves: Asiatic bittersweet, burning bush, glossy buckthorn, Norway maple, shrub honeysuckle; Fruits: Asiatic bittersweet, glossy buckthorn, shrub honeysuckle; Ripe fruits: shrub honeysuckle.

Washington —Leaves: chervil, Japanese barberry, knapweed spp., purple loosestrife, shrub honeysuckle, wild parsnip; Flowers/flower buds: knapweed spp., purple loosestrife, wild parsnip; Open flowers: knapweed spp., purple loosestrife, wild parsnip; Fruits: Japanese barberry, wild parsnip; Ripe fruits: shrub honeysuckle; Recent fruit or seed drop: wild chervil.

Windsor —Leaves: Autumn olive, common buckthorn, glossy buckthorn, multiflora rose, shrub honeysuckle, wild parsnip, wall lettuce; Flowers/flower buds: wild parsnip; Open flowers: wild parsnip; Fruits: Autumn olive, common buckthorn, glossy buckthorn, multiflora rose, shrub honeysuckle, wild parsnip, wall lettuce; Ripe fruits: shrub honeysuckle, wall lettuce; Recent fruit or seed drop: shrub honeysuckle.



**For more information,
contact the Forest
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at 802-505-8259 or:**

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